

**IN THE UNITED STATES DISTRICT COURT  
FOR THE EASTERN DISTRICT OF WISCONSIN  
GREEN BAY DIVISION**

APPLETON PAPERS INC. and	)	
NCR CORPORATION,	)	
	)	
Plaintiffs,	)	
v.	)	No. 08-CV-16-WCG
	)	
GEORGE A. WHITING PAPER COMPANY,	)	
ET AL.,	)	
Defendants.	)	
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NCR CORPORATION,	)	
	)	
Plaintiff,	)	
v.	)	No. 08-CV-0895-WCG
	)	
KIMBERLY-CLARK CORPORATION,	)	
ET AL.,	)	
Defendants.	)	

**DECLARATION OF DONALD F. HAYES, Ph.D., IN SUPPORT OF PLAINTIFFS'  
RESPONSES TO MOTIONS FOR SUMMARY JUDGMENT BY THE UNITED  
STATES, CITY OF GREEN BAY, AND BROWN COUNTY**

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I, Donald F. Hayes, declare as follows:

- 1) I am currently the co-Director of the Institute for Coastal Ecology and Engineering and Endowed Professor of Civil Engineering at the University of Louisiana at Lafayette. I have 28 years of experience in dredging, sediment management, and contaminated sediment remediation. I have published extensively on these topics. My academic background is:

Bachelor of Science, Civil Engineering, Mississippi State University, 1981

Masters of Science, Civil Engineering, Mississippi State University, 1986

Doctorate of Philosophy, Civil Engineering (Environmental Engineering & Water Resources Planning and Management), Colorado State University, 1990

I am a registered Professional Engineer in the State of Mississippi (#09728) and a Board Certified Environmental Engineer by the American Academy of Environmental Engineers. I am also on the Board of Directors of the Western Dredging Association.

- 2) I observed dredging operations in the Federal Channel of the Lower Fox River conducted on behalf of the U.S. Army Corps of Engineers (COE) in September 2002.
- 3) I have not had the benefit of full discovery, but have reviewed certain documents that have become available to me. Attachment A contains a list of documents used to form my opinions. All of the opinions expressed here are to a reasonable degree of scientific and engineering certainty. I have been compensated \$220/hr for my time in conjunction with this project.
- 4) My opinions are preliminary at this point and are subject to obtaining additional information. Based on the materials I have reviewed thus far and my personal observations of the dredging operations, I am able to form the following preliminary opinions relating to dredging operations in the Lower Fox River and Green Bay (collectively, "LFR Site") conducted by and on behalf of the COE as well as the disposal of dredged spoil, the impact of these operations on polychlorinated biphenyl ("PCB") contamination in the LFR Site, and the impact on the remedial actions now underway.
- 5) COE dredging records indicate that the majority of sediment dredged from the LFR prior to 1967 above DePere Dam was "sidecast." WDNR (Technical Memo 2g, page 4) indicates that some sediment dredged below DePere Dam was also sidecast. (Sidecasting is the practice of "casting" dredged sediment into waters immediately adjacent to the dredge.) Sidecast disposal increases the potential for biological exposure to these PCB contaminated sediments by moving them to more biologically rich shallow water areas outside of the channel. Additionally, sidecasting results in high concentrations of suspended sediments that are available for downstream transport.
- 6) COE dredging records also indicate open water disposal of sediment dredged downstream of DePere Dam as late as 1974. Open water disposal increases the potential for biological exposure, especially in high energy environments that may redistribute the unconsolidated dredged sediments.
- 7) The COE primarily used mechanical (bucket and dipper) dredging operations to dredge the LFR site upstream of Green Bay until they began contracting dredging operations in 1983; similar equipment was likely used for most contracted dredging operations after 1983. In September 2002, I personally observed bucket dredging operations taking place in the LFR Site. Those bucket dredging operations involved placing sediments on a flat-top deck barge with wood fences loosely holding the sediment in place. Sediment-laden water poured through the fences and drained back into the LFR site. The COE contractor on site at the time emphasized the importance of the side planks allowing drainage during transport so less water made it to Bayport CDF. I was astonished to see this type of dredging practice still occurring in 2002 at a well-known contaminated sediment site. This type of sediment management has historically been prohibited or restricted in many United States ports for water quality purposes even when uncontaminated sediment is being dredged. The COE's Green Bay Harbor 1977 EIS stated (p. 1-13) "All dredges and supporting equipment used are required to have water-tight equipment, including coamings,

which must be maintained in order to prevent accidental spillage of oils and dredged materials.” This policy was reinforced on p. 9-17 in response to a question by WDNR. However, it did not seem that the policy was being enforced 25 years later, suggesting that it was not likely ever enforced. If this type of practice was used during all mechanical dredging operations in the LFR site, it is my opinion that it could have spread contamination across the LFR Site with losses during dredging, transport to the disposal area, and unloading at the confined disposal facility (CDF).

- 8) COE records show that a mixture of dipper dredges and hopper dredges were used from Green Bay to the outer channel until contract dredging began in 1983. Given the inappropriate practices observed associated with bucket dredging in 2002 within the Lower Fox River Channel, it is my opinion that the operations of dipper and hopper dredges also more likely than not resulted in significant losses to the environment during dredging, transportation, and disposal. Dipper dredges likely used a barge similar to that used in the observed bucket dredging operation. If more traditional hopper barges were used, it is likely that overflow was allowed. While the potential extent of PCB redistribution would not be as high as barges with wooden fences, it could still be significant. Hopper dredges were also likely allowed to overflow resulting in even higher levels of PCB losses due to the high pumping rates common for hopper dredges.
- 9) These inappropriate dredging practices at the LFR site resulted in making suspended sediment in the water column available for transport downstream either short or long distances. The most significant redistribution may have been into shallow water areas immediately adjacent to the dredging operations. Those areas may not otherwise be subjected to significant suspended sediment loads. Without these dredging losses, these areas may not have required remediation or had significant Natural Resource Damages (“NRD”) liability.
- 10) Sidecasting redistributed sediment into areas of the river that would not normally be areas of preferential settlement, resulting in even more significant impacts. Downstream transport would increase during sidecast disposal, but the largest impact may well be placing large quantities of PCB contaminated sediments into shallower environments. These contaminated sediments likely covered large areas of valuable fish-spawning zones. Without these actions, these areas outside of the channel may not have required remediation.
- 11) The use of sidecast disposal of dredged sediments, wood fence coaming on deck barges, barge overflow, and hopper overflow do not and did not represent best management practices for contaminated sediment dredging operations. More environmentally sound practices were available during the times in which those practices were in use by or on behalf of the COE on the LFR Site.
- 12) Inappropriate dredging practices by and on behalf of the COE almost certainly increased the scope and cost of remedial actions at the LFR Site. In order to quantify those amounts, I would need to obtain additional information regarding historical dredging practices and exact locations of dredging and disposal.
- 13) The documents reviewed show documented PCB releases from Renard Island CDF. The COE’s 1985 EIS for Renard Island CDF expansion states “The Kidney Island confined disposal facility has had a history of dike leakage, resulting in direct discharge of untreated carriage

water.” (p. EIS-G-36). A 1985 US Fish and Wildlife Service report states that water quality samples showed suspended solids in excess of 1,000 mg/L discharging from Kidney Island in 1983 (p. E-19). WDNR documented similar discharges from Bayport CDF in several other documents. Additional information is needed to evaluate the impact of any such losses.

14) Historical and continuing PCB losses from Renard Island and Bayport CDFs are a contributing reason for the extensive long-term monitoring requirements within Green Bay.

15) As discussed above, my opinions are preliminary and subject to obtaining additional information through full discovery.

Pursuant to 28 U.S.C. §1746, I declare under penalty of perjury that the foregoing is true and correct.

DATE: April 30, 2010

/s/ Donald F. Hayes  
Donald F. Hayes, Ph.D., P.E.

## ATTACHMENT A

*Agreement between the United States of America and the City of Green Bay, Wisconsin for local cooperation at the Bayport Fill Area Green Bay Harbor, Wisconsin. May 25, 1977.*

Annual Report Dredging Data, U.S. Army Corps of Engineers, Detroit District, Project Operations Section, October 20, 1997.

Bay-Lake Regional Planning Commission. *Ten-year dredged material disposal plan for Lower Green Bay.* 1983.

City of Green Bay, Brown County, Wisconsin. *Final screening site inspection report for the Bayport Industrial Park.* U.S. EPA ID# : WID074797028. September 23, 1993.

City of Green Bay, Brown County, Wisconsin. *Final screening site inspection report for the Bayport Industrial Park.* U.S. EPA ID# : WID074797028. September 23, 1993.

City of Green Bay, Department of Public Works and Planning Committee. *Project Bay Port Update.* March 31, 1989.

Confined Disposal Facility, Green Bay Harbor, Wisconsin. *Final environmental impact statement.*

Department of the Army, Chicago District, Corps of Engineers, Chicago, IL. *Final environmental impact statement relating to operation, maintenance, and dredged material disposal at Green Bay Harbor Wisconsin.* November 1977.

Department of the Army, Detroit District, Corps of Engineers, Detroit, MI. *Letter report and draft environmental impact statement, Confined Disposal Facility at Green Bay Harbor, Wisconsin.* December 5, 1984.

Fassbender, Ronald L., State of Wisconsin, Department of Natural Resources, Lake Michigan District Headquarters, Green Bay, WI. Letter to Colonel Raymond T. Beurket, Jr., District Engineer, U.S. Army Engineer District, Detroit, MI. March 29, 1984.

Fulk, Richard, Gruber, David, and Wullschleger, Richard. *Laboratory study of the release of pesticide and PCB materials to the water column during dredging and disposal operations. U.S. Army Engineer Waterways Experiment Station Contract Report D-75-6.* December 1975.

*Lower Green Bay Remedial Action Plan.* February 1988.

Lowry, Gerald R., United States Department of the Interior, Fish and Wildlife Service, Twin Cities, MN. Letter to Colonel Raymond T. Beurket, Jr. including the Final Fish and Wildlife Coordination Act Report for confined disposal of polluted sediment at Green Bay Harbor, Wisconsin. June 5, 1985.

Stoll, Richard and Erdmann, Kathryn. *Wisconsin Department of Natural Resources, Preliminary Green Bay mass balance groundwater monitoring report (an assessment of the Bayshore landfills)*. January 1990.

Stoll, Richard and Erdmann, Kathryn. *Wisconsin Department of Natural Resources Stage II Green Bay mass balance groundwater monitoring results (Military Avenue, Bayport Dredge, and P.H. Glatfelter Landfills)*. March 1992.

United States Department of the Interior, Fish and Wildlife Service, Green Bay Field Office. *Planning aid letter for the Green Bay Harbor Dredged Material Disposal Site selection study*. October 13, 1983.

Wible, L.F., Administrator, Division of Environmental Standards, Department of Natural Resources, State of Wisconsin. Letter including reissued WPDES permit sent to Mr. Mark S. Grazioli, Chief, Construction-Operations Division, U.S. Army Engineer District, Detroit, MI. October 4, 1982.

WDNR, 1999. Quantification of Lower Fox River Sediment Bed Elevation Dynamics through Direct Observations, Model Evaluation Workgroup Technical Memorandum 2g, Wisconsin Department of Natural Resources, Madison, Wisconsin.